

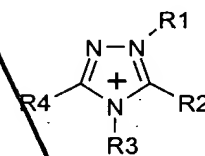
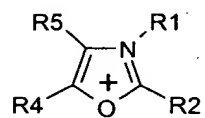
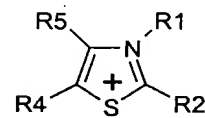
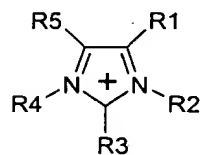
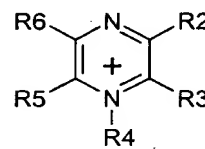
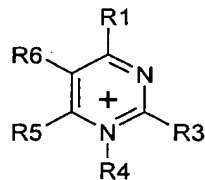
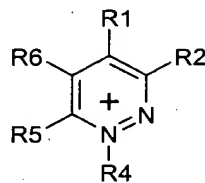
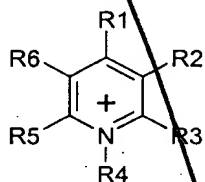
# Patent claims

1. An ionic liquid of the formula



wherein:

$K^+$  is a cation selected from



wherein

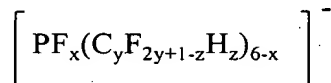
$R^1$  to  $R^6$  are identical or different and are each individually

- H,
- halogen,
- an alkyl radical ( $C_1$  to  $C_8$ ), which is unsubstituted or partially or fully substituted by F, Cl,  $N(C_nF_{(2n+1-x)}H_x)_2$ ,  $O(C_nF_{(2n+1-x)}H_x)$ , or  $(C_nF_{(2n+1-x)}H_x)$ , where  $1 < n < 6$  and  $0 < x \leq 13$ .

- a phenyl radical which is unsubstituted or partially or fully substituted by F, Cl,  $N(C_nF_{(2n+1+x)}H_x)_2$ ,  $O(C_nF_{(2n+1-1)}H_x)$ ,  $SO_2(C_nF_{(2n+1-x)}H_x)$  or  $C_nF_{(2n+1-x)}H_x$  where  $1 < n < 6$  and  $0 < x \leq 13$ , or

one or more pairs of adjacent  $R^1$  to  $R^6$  can also be an alkylene or alkenylene radical having up to 8 C atoms and which is unsubstituted or partially or fully unsubstituted by halogen,  $N(C_nF_{(2n+1-x)}H_x)_2$ ,  $O(C_nF_{(2n+1-x)}H_x)$ ,  $SO_2(C_nF_{(2n+1-x)}H_x)$  or  $C_nF_{(2n+1-x)}H_x$  where  $1 < n < 6$  and  $0 \leq x \leq 13$ ; and

$A^-$  is an anion of the following formula



where  $1 \leq x < 6$

$1 \leq y \leq 8$  and

$0 \leq z \leq 2y+1$ .

2. A compound according to claim 1, wherein at least one  $R^1$  to  $R^6$  group is a halogen.
3. A compound according to claim 1, wherein at least one  $R^1$  to  $R^6$  group is an alkyl radical ( $C_1$  to  $C_8$ ), which is unsubstituted or partially or fully substituted by F, Cl,  $N(C_nF_{(2n+1-x)}H_x)_2$ ,  $O(C_nF_{(2n+1-x)}H_x)$ , or  $(C_nF_{(2n+1-x)}H_x)$ , where  $1 < n < 6$  and  $0 < x \leq 13$ .
4. A compound according to claim 1, wherein at least one  $R^1$  to  $R^6$  group is a phenyl radical which is unsubstituted or partially or fully substituted by F, Cl,  $N(C_nF_{(2n+1+x)}H_x)_2$ ,  $O(C_nF_{(2n+1-1)}H_x)$ ,  $SO_2(C_nF_{(2n+1-x)}H_x)$  or  $C_nF_{(2n+1-x)}H_x$  where  $1 < n < 6$  and  $0 < x \leq 13$ .
5. A compound according to claim 1, wherein at least one adjacent pair of  $R^1$  to  $R^6$  is an alkylene or alkenylene radical having up to 8 C atoms and which is unsubstituted or partially or fully unsubstituted by halogen,  $N(C_nF_{(2n+1-x)}H_x)_2$ ,  $O(C_nF_{(2n+1-x)}H_x)$ ,  $SO_2(C_nF_{(2n+1-x)}H_x)$  or  $C_nF_{(2n+1-x)}H_x$  where  $1 < n < 6$  and  $0 \leq x \leq 13$ .
6. A compound according to claim 1, wherein said compound has at least one perfluorinated alkyl group.

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7. A compound according to claim 1, wherein said compound contains at least one  $C_yF_{2y+1-2z}H_z$  group selected from  $C_2F_5$  and  $C_4F_9$ .
8. An electrochemical cell comprising a cathode, an anode, a separator, and an ionic liquid of claim 1.
9. A capacitor comprising of at least a pair of electrodes, a separator, and an ionic liquid of claim 1.
10. An electrolyte composition comprising an ionic liquid of claim 1 and an aprotic solvent.
11. An electrolyte composition comprising an ionic liquid of claim 1 and a conductive salt.

all  
as

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